

WHAT IS CLAIMED IS:

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1. A roll for smoothing a web comprising:
a roll core having an outer surface;
a covering layer disposed on the outer surface of the roll core, the covering layer having an inner surface and an outer surface;
the covering layer comprising at least one thermosetting plastic and at least one thermoplastic.
 2. The roll of claim 1, wherein the web is a paper web.
 3. The roll of claim 1, wherein the roll core comprises a hard metal roll core.
 4. The roll of claim 1, wherein the covering layer comprises a matrix material and wherein one of fillers and fibers are embedded in the matrix material.
 5. The roll of claim 1, wherein the amount thermosetting plastic is, one of greater than and proportionally greater than, the amount of thermoplastic.
 6. The roll of claim 5, wherein the proportion of thermosetting plastic is one of between approximately 50% and 80%.
 7. The roll of claim 6, wherein the proportion is between approximately 60% and 75%.
 8. The roll of claim 7, wherein the proportion is approximately 70%.
 9. The roll of claim 1, wherein the covering layer includes at least two different thermosetting plastics.
 10. The roll of claim 9, wherein the covering layer includes at least two different thermoplastics.
 11. The roll of claim 1, wherein the covering layer includes at least two different thermoplastics.
 12. The roll of claim 1, wherein the covering layer comprises a mixture of the at least one thermosetting plastic and the at least one thermoplastic and wherein an

amount of the thermosetting plastic relative to the amount of thermoplastic in the covering layer comprises a mixture ratio which is essentially constant over an axial length of the covering layer.

13. The roll of claim 1, wherein the covering layer comprises a mixture of the at least one thermosetting plastic and the at least one thermoplastic and wherein an amount of the thermosetting plastic relative to the amount of thermoplastic in the mixture comprises a mixture ratio which is essentially constant over a radial thickness of the covering layer.

14. The roll of claim 1, wherein the covering layer comprises a mixture of the at least one thermosetting plastic and the at least one thermoplastic and wherein an amount of the thermosetting plastic relative to the amount of thermoplastic in the mixture comprises a mixture ratio which varies over a radial thickness of the covering layer.

15. The roll of claim 14, wherein the amount or proportion of thermoplastic relative to the amount of the thermosetting plastic increases radially outwardly in the covering layer.

16. The roll of claim 1, wherein the covering layer includes one of fillers and fibers.

17. The roll of claim 16, wherein the covering layer comprises a matrix material and wherein the fillers or fibers are disposed in the matrix material of the covering layer.

18. The roll of claim 1, wherein the covering layer includes fibers arranged in the form of one or more fiber layers.

19. The roll of claim 1, wherein the covering layer includes one of glass, carbon, and aramide fibers.

20. The roll of claim 1, wherein the covering layer includes fibers and fillers.

21. The roll of claim 20, wherein the fibers and fillers are encapsulated by the covering layer made of matrix material.

22. The roll of claim 1, wherein the covering layer includes powdered fillers.

~~23. The roll of claim 1, wherein the at least one thermoplastic has a melting temperature which is below a glass transition temperature of the at least one thermosetting plastic.~~

24. A process for making a roll for smoothing a web comprising:

providing a roll core having an outer surface;

forming an elastic covering layer including at least one thermosetting plastic and at least one thermoplastic; and

applying the covering layer to the outer surface of the roll core.

25. The process of claim 24, wherein the forming comprises mixing the at least one thermosetting plastic and at least one thermoplastic to form an elastic matrix material.

26. The process of claim 24, wherein the covering layer comprises one of fibers and fillers.

27. The process of claim 24, wherein the covering layer comprises fibers which are arranged in the form of one of fiber bundles, fiber rovings, and fiber fleeces.

28. The process of claim 24, wherein the forming comprises:

mixing the at least one thermosetting plastic and at least one thermoplastic to form an elastic matrix material; and

placing fibers one of into and adjacent to the elastic matrix material.

29. The process of claim 24, wherein the forming comprises mixing the at least one thermosetting plastic and at least one thermoplastic to form an elastic matrix

material and wherein the applying comprises drawing fibers through a matrix bath comprising the elastic matrix material and winding the fibers.

30. The process of claim 29, wherein the covering layer is formed with the fibers being wound onto a tool and thereafter the covering layer is applied to the roll core.

31. The process of claim 29, wherein the covering layer is formed with the fibers being wound onto to the roll core.

32. The process of claim 24, wherein the forming comprises mixing the at least one thermosetting plastic and at least one thermoplastic to form an elastic matrix material and wherein the applying comprises winding fibers in a substantially dry state and thereafter coating the fibers with the elastic matrix material.

33. The process of claim 32, wherein the covering layer is formed with the fibers being wound onto a tool and thereafter the covering layer is applied to the roll core.

34. The process of claim 32, wherein the covering layer is formed with the fibers being wound onto to the roll core.

35. The process of claim 32, wherein the wound fibers comprise one of fiber bundles, fiber rovings, and fiber fleeces.

36. The process of claim 32, wherein the coating completely encapsulates the fibers.

37. The process of claim 32, wherein the coating occurs one of during and after the fibers are wound.

38. The process of claim 24, wherein the at least one thermosetting plastic and the at least one thermoplastic are mixed together by one of a physical and a mechanical mixing procedure.

39. The process of claim 24, wherein the at least one thermosetting plastic and the at least one thermoplastic are mixed together by one of a chemical mixing process and a copolymerization.

40. A process of repairing a roll for smoothing a web comprising:
heating an elastic covering layer made from an elastic matrix material which comprises at least one thermosetting plastic and at least one thermoplastic; and
filling any markings in a surface of the covering layer.

41. The process of claim 40, wherein the filling comprises filling the markings with a material which is comparable to the matrix material.

42. The process of claim 40, wherein the filling comprises allowing the markings to be filled with heated matrix material from the covering layer.

43. The process of claim 40, further comprising rotating the elastic covering layer one of during and after the heating.

44. The process of claim 40, further comprising removing the covering layer from a roll core prior to heating and thereafter placing the covering layer onto the roll core.

45. The process of claim 40, wherein the heating comprises heating the covering layer while it remains installed on a roll core.

46. The process of claim 40, further comprising one of smoothing and polishing a surface of the covering layer one of during or after the heating.

47. A roll for smoothing a web comprising:
a roll core having an outer surface;
a covering layer disposed on the outer surface of the roll core, the covering layer having an inner surface and an outer surface;
the covering layer comprising an elastic matrix material;

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the elastic matrix material comprising a mixture of at least one thermosetting plastic and at least one thermoplastic; and

the covering layer including one of fibers and fillers,

wherein the at least one thermoplastic has a melting temperature which is below a glass transition temperature of the at least one thermosetting plastic.

48. A process for making a roll for smoothing a web comprising:

providing a roll core having an outer surface;

forming an elastic covering layer by mixing at least one thermosetting plastic and at least one thermoplastic to form an elastic matrix material;

placing fibers one of into and adjacent to the elastic matrix material; and

applying the covering layer to the outer surface of the roll core,

wherein the at least one thermoplastic has a melting temperature which is below a glass transition temperature of the at least one thermosetting plastic.

49. A process of repairing a roll for smoothing a web comprising:

heating an elastic covering layer made from an elastic matrix material which comprises at least one thermosetting plastic and at least one thermoplastic, the at least one thermoplastic having a melting temperature which is below a glass transition temperature of the at least one thermosetting plastic,

wherein the covering layer is heated above the melting temperature of the at least one thermoplastic and below the glass transition temperature of the at least one thermosetting plastic.

50. The process of claim 49, further comprising rotating the elastic covering layer one of during and after the heating.

51. The process of claim 49, further comprising smoothing or polishing a surface of the covering layer one of during and after the heating.